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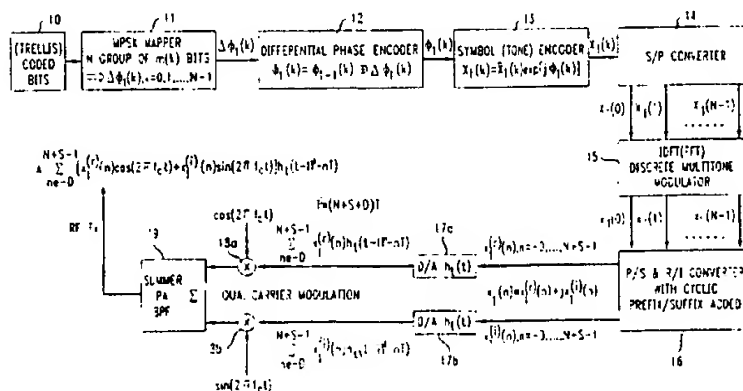
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(54) An FFT-based multitone DPSK modem

(57) A system and a method for transmitting coded information bits using multitone techniques on a frame-by-frame basis. For transmission, coded information bits are mapped into differential phase signals and absolute phase signals are generated based on differential phase signals. N complex symbols are then generated and inverse discrete Fourier transformed into N complex, time-domain samples, which are augmented with a cyclic prefix and suffix. The augmented N complex, time-domain samples are then separated into two real samples and converted into first and second baseband signals. The first and second baseband signals are impressed into quadrature carrier components to form in-phase and quadrature signal components which

are combined into an RF signal prior to transmission. For reception, a received RF signal is non-coherently quadrature demodulated into first and second quadrature baseband signals. First and second quadrature sample sequences are generated by sampling the quadrature baseband signals in parallel. The added cyclic prefix and suffix are discarded, and N complex numbers are generated from the first and second quadrature (real) sample sequences. N channel-weighted tones are generated by performing a discrete Fourier transform on the N complex numbers. N phase difference signals are generated which are demapped into coded information bits according to a predetermined phase constellation.

FIG. 1



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Application Number
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X	BINGHAM J A C: "MULTICARRIER MODULATION FOR DATA TRANSMISSION: AN IDEA WHOSE TIME HAS COME" IEEE COMMUNICATIONS MAGAZINE,US,IEEE SERVICE CENTER. PISCATAWAY, N.J., vol. 28, no. 5, page 5-8,11-14 XP000132491 ISSN: 0163-6804 * page 12, right-hand column, paragraph 1 - paragraph 5 * * page 13, left-hand column, paragraph 2; figure 7 *	1-34	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 November 1999	Examiner Koukourlis, S
<div>CATEGORY OF CITED DOCUMENTS</div> <div> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document </div> <div> T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document </div>			

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CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document		T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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